

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. After amending the claims as set forth above, claims 1, 4-10, 12, 14-16, and 19-27 are now pending in this application.

Applicant wishes to thank the Examiner for the careful consideration given to the claims.

Rejection of claims 1, 4-10, 12, 14-16, and 19-27 based on Seto

Claims 1, 4-10, 12, 14-16, and 19-27 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication 2003/0067219 (“Seto”). For at least the following reasons, this rejection is traversed.

Claim 1 has been amended to recite “a control unit that varies an assumed characteristic of manual steering operation in accordance with a condition of a path where the vehicle is traveling and executes an automatic braking control operation to avoid a potential collision with the obstacle, based on the assumed manual steering operation characteristic.” Seto does not teach or suggest this combination of features.

For example, Seto does not teach an assumed characteristic of manual steering operation in accordance with a condition of a path where the vehicle is traveling. According to one embodiment of the present invention, the assumed characteristic of manual steering operation, as shown in FIG. 2, is determined in step S4 based on the degree of easiness of steering-based collision avoidance estimated in step S3. (See paragraphs 0040-0043 of the present application.) In contrast, Seto does not vary an assumed manual steering operation characteristic because an assumption is always made that the driver turns a steering wheel to a maximum steered position at a certain steering speed. (See paragraph 0052 of Seto.) It is noted that the vehicle speed, the yaw rate, the slip angle, lateral distances and forces, and the steered angle are not assumed manual steering operation characteristics but are merely measured or calculated physical parameters or environmental conditions. Because Seto does not teach an assumed characteristic of manual steering operation, claim 1 is not rendered unpatentable over the prior art.

For analogous reasons, claims 10 and 12 are also not rendered unpatentable over the prior art because claim 10 recites a “control means for varying an assumed characteristic of manual steering operation” and claim 12 recites “a control unit that varies an assumed characteristic of manual steering operation.”

Claims 4-9, 14-16, and 19-27 depend from and contain all the features of claim 1 or claim 12, and are allowable therewith for at least the reasons set forth above, without regard to the further patentable features contained therein.

Additionally, in relation to dependent claims 5-6, 8-9, 22-23, and 25-26, there is no teaching or suggestion of an “avoidance space width detecting unit that detects widths of spaces on the sides of the obstacle.” According to an embodiment of the present invention, the degree of easiness of steering-based collision avoidance may be determined, for example, in accordance with the width of space on the sides of the obstacle. Then, the direction of steering-based collision avoidance can be determined in accordance with the degree of easiness of the steering-based collision avoidance prior to the consideration of the required lateral displacement. Further, the width of space on the sides of the obstacle can be defined, for example, by the geometrical relationship between the obstacle and the width of the road. In contrast, Seto merely determines the vehicle interval distance between the host vehicle and the obstacle (i.e., the preceding vehicle) and a lateral moved distance.

The lateral moved distance of Seto is not the same thing as detecting the widths of spaces on the sides of the obstacle. The “avoidance space width” is an available space though which the host vehicle is to pass, while the “lateral distance” is a distance that is necessary for the host vehicle to move in the lateral direction. In an embodiment of the present application, as the “avoidance space width” increases, the degree of easiness of steering-based collision avoidance increases. On the other hand, in Seto, as the “lateral distance” increases, the required time increases so that the difficulty of steering-based collision avoidance increases. Seto makes no mention whatsoever about detecting the widths of the available spaces on the sides of the obstacle. In response to Applicant’s assertion that Seto does not teach the detection of the widths of spaces on the sides of the obstacle, the PTO asserts that Seto does provide such a teaching but has failed to point to the particular portions of Seto that disclose such a feature. Indeed, the PTO merely states to look at paragraphs 0024-0059 (for claims 5 and 22) or paragraphs 0059-0075 (for claims 8 and 25) of Seto for such a teaching which is 50 paragraphs, i.e., about half of the written description of Seto. Such a citation falls short of appropriately identifying where Seto discloses all the features of the claims. Therefore, the PTO has failed to particularly identify in Seto where the detection of the width of spaces on the sides of the obstacle is disclosed. Thus, the rejection of claims 5-6, 8-9, 22-23, and 25-26 are also improper for at least these reasons.

For at least these reasons, favorable reconsideration is respectfully requested.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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